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EXECUTIVE SUMMARY

I. Background

The mandatory electronic government payment provisions of the Debt Collection Improvement Act of 1996 (EFT 99) will go into effect on January 1, 1999 for conversion of government payment recipients who currently receive checks. The law requires that all government payments, except tax refunds and hardship cases, be made electronically as of that date. EFT 99 provisions are already in effect for new government payments. Fully Implementing EFT 99 provisions means that government vendor payments will also be made electronically (e.g., direct deposit). To minimize impact on vendor accounting processes, electronic payments must include sufficient information such as origin of a payment and service being paid for. This information must be prompt to allow reconciliation of vendor accounts in a timely fashion.

Payment-related information, commonly referred to as “remittance data,” is used by a business to identify payments made to a business account on behalf of the payer. Remittance data is defined as information associated with an electronic payment. More specifically, remittance data identifies the electronic payment by invoice, purchase order, or any other identifiers on which the recipient and payment agency agree. Without this information, reconciling accounts is difficult to perform.

This report describes the results of a project undertaken by the Booz·Allen & Hamilton team to assist the Department of the Treasury Financial Management Service (FMS) in assessing:

- Today’s banking industry and the extent to which banks are capable of electronic data interchange (EDI),
- Where the industry will stand in the future regarding EDI,
- The effect of mandatory electronic funds transfer (EFT) legislation on banks’ and vendors’ efforts to become EDI capable, and
- Short- and long-term alternatives to distributing payment information to vendors.

To provide FMS with an analysis of each of the above key areas of concern, our research primarily focused on three stakeholders: government agencies, banks, and government vendors. The primary focus of this study is based on the banks’ ability to receive and forward remittance data. The secondary focus of this study is based on the recipients’ ability to receive the remittance data which results in our emphasis on the receivable EDI process. As part of the focus of this report, recipients are assumed to be primarily government vendors.

Based on the scope of work, Booz·Allen’s approach to this assignment emphasized EDI functionality, industry standards, typical EDI trading partner corporate agreements, and remittance data distribution issues. The project entailed secondary literature searches, sixty-five stakeholder interviews, three focus groups, data analysis focused on the relevance of information gathered to electronically process remittance data, and meetings and discussions with Treasury staff.

As demonstrated in various chapters of this report, solutions to the problem of getting remittance data to vendors are neither simple nor straightforward. Chapter 2 of this report provides an overview of the current banking industry. This chapter shows that the banking industry is almost fully interconnected by the ACH network and standardized formats are widely available for EDI addenda records. The limitation in using this reliable and safe infrastructure is that not all banks on the ACH network can process the addenda information. In Chapter 3, we provide evidence that a wide range of potential technology innovations exists. These potential innovations contribute to the uncertainty of banks and vendors in deciding what EDI solutions to adopt. Any given solution could become obsolete before the return on investment is realized. Chapter 4 provided an analysis of how EFT 99 may affect banks by showing three segments that influence how banks operate: customers, government, and industry. Chapter 5 presents options for Treasury and other stakeholders to ensure that solutions to EFT 99 facilitate remittance data distribution without undue burden on stakeholders.

An electronic remittance data transfer process is the optimal solution for the Government because a complete cost savings from the conversion of checks to electronic payments would be realized. Without remittance data, a recipient cannot determine the origin of a payment or for what service a payment is intended. Although remittance data is less of an issue for individuals who generally receive a single, fixed payment amount, it becomes important as payments become more complex. One form of remittance data is a bank statement that provides customers with account payment information. Unfortunately, these statements are distributed only monthly, which does not meet most businesses' requirements. Paying vendors electronically while simultaneously mailing a paper stub that displays payment information defeats the purpose of EFT 99—to reduce costs associated with the payment process. Consequently, EDI is being considered as a viable solution to the remittance data distribution problem, although it is not a commonly used process in the banking industry, nor is EDI being implemented extensively by vendors.

II. Trends

According to the National Automated Clearing House Association (NACHA), EDI participation is growing among large banks at an annual rate of 76 percent, whereas “smaller banks do not have the resources to support EDI.”¹ EDI usage in the small business community (both financial and private sector) is expected to continue growing but, not as rapidly as large banks.

Several factors possibly contribute to the growing demand of EDI. Our research indicates that two primary reasons for the growth rate of EDI in the banking industry are profit margin and client demand.

Today bank customers who have a personal computer (PC) and a modem can “dial-in” to the bank’s system. Although PC banking is a relatively new technology in the banking industry, an increasing number of customers are supporting this process. Research suggests that customers

¹ Confidential interview with bank representative, March 1997.

will be able to retrieve remittance data via PC Banking once software features to provide this remittance data are incorporated.

Banks that provide an Audio Response Unit (ARU) to their customers could enhance these systems to be capable of providing remittance data in the future. The system would be similar to current ARU systems. A customer would be required to have a personal identification number (PIN) and an account number. Once the customer was verified by the system, menus would be used to access remittance data.

Research findings also support the prediction that Internet sites will become a common medium for customers to conduct business. Research has proven that it is possible to use E-mail to carry structured EDI messages which appears to provide another, potentially less costly, network for trading partners to exchange data. E-mail transmittal requires that each trading partner have the proper hardware and software to communicate and secure the transaction.

It is expected that the fax machine will continue to be a means of distributing remittance data. In cases where the sending partner is EDI capable but the receiver is not, a fax delivers data in a human readable format. However, value-added banks (VABs) and value-added networks (VANs) are expected to continue to be the most popular means of providing EDI communication skills, expertise, and equipment necessary to electronically communicate. A bank's participation in EDI greatly depends on several factors. This report predicts that the following will occur by 1999:

- Large banks will continue to support full EDI capabilities. "More than 40 percent of the top 300 banks will offer EDI by 1998,"² therefore, we can expect this number to increase by 1999. As a result, nearly half of the large banks will provide full service EDI.
- Small and medium banks will be inclined to invest in EDI because the majority of the industry is conducting EDI as a part of their everyday business process.
- Transaction fees associated with EDI will decrease as a result of less expensive EDI software. Lower fees will appeal to all banks and result in more banks using EDI.
- A NACHA rule will pass, resulting in banks increasing their business process to include EDI.
- PC banking and the Internet will be used to conduct financial transactions and distribute remittance data.

Items listed above represent an estimate of the banking industry. It is not the intent of the research team to suggest that the list is all inclusive, nor can it be said that these events will definitely occur.

III. Impact of EFT 99

² Marjanovic, Steven. "Declining Costs Lead to an Explosion in On-Line Corporate Banking Services." *American Banker*, 16 October 1996: 8.

For vendors who wish to reconcile accounts daily or weekly, monthly distribution of bank statements with complete remittance data is unacceptable. Moreover, receiving remittance data simultaneously with an electronic payment is an issue for most recipients who want to distinguish their payments in detail. This is due to a majority of U.S. commercial banks being incapable of originating or receiving electronic remittance data (i.e., ACH transactions with addenda records). Customers, government regulations, and industry norms affect a bank's operations. These three factors exert external influence regarding how banks respond to requests to provide complete electronic remittance data with ACH payments.

Although the full effect of mandatory EFT will not be known until after the implementation date, several predictions about impacts can be made at this time:

- The number of deposit accounts that receive direct deposit will increase. Most stakeholders identified in this report will encourage payment recipients to enroll for direct deposit, which is a simple and well understood approach to providing electronic payments.
- The ACH network(s) and other media of choice will show an increased transaction volume as the Government converts to mandatory EFT. Anticipated volumes are unknown at present, but they are expected to be significant enough to warrant increases in capacity. The demand for additional capacity will give rise to additional costs to upgrade and improve existing computers and telecommunications to handle the volume.
- The Government can expect most large, and some medium banks, to support EFT 99 by providing remittance data with payments. Remittance data will primarily be made available using an electronic and automated medium, but no single solution will support all bank customers and their individual system configurations.
- EFT 99 will force many small and medium banks to decide between supporting the transfer of remittance data with payments or losing customers who conduct business with the Government.

IV. Solutions

The most effective method of ensuring remittance data reaches Government vendors is to work with NACHA and the Financial community to pass the proposed regulation. The use of the ACH network as both a payment medium and as a information stream offers the Treasury an inexpensive, reliable, and secure method of implementing EFT 99 and providing customers with excellent service. However, enacting this method of payment requires Treasury to perform two roles which are both external and internal to the government:

- Treasury should continue to participate in the NACHA rule making process to ensure that the proposed regulation requiring Financial Institutions to provide remittance data is compatible with Treasury payment processes.
- Treasury should continue to work with the program agencies to 1) ensure that they continue to communicate any issues or problems with providing remittance data; and 2) to facilitate the use of CCD+ or CTX format for use in the ACH payment process.

The consequences are serious and represent significant costs to Treasury. The alternative of Treasury assuming the role of providing remittance data would require one or a combination of the following options:

- The development of a central vendor registry and the funneling of payment information through this entity,
- Each program agency developing or continuing to operate its own remittance data processing service, and/or
- Outsourcing these services to a third party.

For banks and vendors, all options of how to provide remittance data fall into the short term category. Each has associated costs and implementation timeframes. If banks do not provide this service and the Government has to, cost and implementation timeframe are going to be far greater. Factors causing the additional cost and increased timeframe include duplication of effort, inconsistent service delivery, the need for coordination among multiple program agencies and vendors, and the fragmentation of economies of scale.

1. INTRODUCTION

In October 1996, the Department of the Treasury Financial Management Service (FMS) engaged Booz·Allen & Hamilton and Furash & Company to undertake a study: FMSS 54—Task One. The purpose of the Task One study was to assist FMS in developing the proposed rule to implement the mandatory electronic government payments provisions of the Debt Collection Improvement Act of 1996 (EFT 99). Specifically, the law requires that all government payments, except tax refunds and hardship cases, be made electronically by January 1, 1999. FMS issues 840 million payments annually, totaling approximately \$1.2 trillion. Additionally, the Department of Defense (DoD) and other small agencies with disbursement authority issue 140 million payments. Treasury anticipates that the move toward eliminating a paper-based payment distribution process will result in a savings of approximately \$500 million during the next 5 years in postage and check production costs alone.³ Although the elimination of the paper payment process is appealing, several issues still exist.

Task Two of FMSS 54 expands on the initial study by focusing on remittance data. Payment-related information, commonly referred to as “remittance data,” is used by a business to identify payments made to its account. Without this information, reconciling accounts is difficult to perform. To provide vendors and individuals with remittance data, Treasury must identify systems to supply data that are cost effective for all parties and generally acceptable. Moreover, this remittance data must be provided in a timely manner that meets the reporting requirements of individuals and businesses. Receiving remittance data simultaneously with an electronic payment is an issue for most recipients who want to distinguish their payments in detail. FMS contracted our research team to assess a bank’s ability to provide remittance data via electronic means and pay Federal Government vendors. This study focuses on distribution of remittance data to vendors.

Electronic Data Interchange (EDI) is the primary method used to electronically transmit remittance data among organizations (i.e., trading partners). This report demonstrates that EDI is not the only means to distribute remittance data. Chapter 5 provides suggested alternatives that FMS may wish to consider for distributing remittance data to vendors.

1.1 SCOPE

Task Two of FMSS 54 provides FMS with a thorough assessment of the following:

- Today’s banking industry and the extent to which banks are EDI capable
- Where the industry will stand in the future regarding EDI
- The effect of mandatory electronic funds transfer (EFT) legislation on banks’ and vendors’ efforts to become EDI capable

³ Singeltary, Michelle. “Electronic World, Unchecked Problem?” The Washington Post, 4 March 1997.

- Short- and long-term alternatives to distributing payment information to vendors.

To provide FMS with an analysis of each of the above key areas of concern, our research primarily focused on three stakeholders: government agencies, banks, and government vendors.

1.2 APPROACH

Based on the scope of work, Booz·Allen's approach to Task Two emphasized EDI functionality, industry standards, typical EDI trading partner corporate agreements, and remittance data distribution issues. Task Two was composed of four phases: Phase 1, Secondary Research; Phase 2, Stakeholder Interviews; Phase 3, Data Analysis; and Phase 4, Report Generation. Although the task was partitioned into four distinct phases, many activities were concurrently conducted to meet the schedule constraints.

Phase 1 included conducting secondary research such as library and Internet searches for relevant information on EDI. Results of the searches provided our research team with a background on current issues in Electronic Commerce (EC) and EDI industry capabilities, predominantly in the financial services industry. In addition, the research team attended the Virginia EDI Expo in Richmond, Virginia, on March 13, 1997, to obtain industry perspectives on EDI from small to large banks and vendors. The team gathered data from many small- to medium-size companies that conduct business with the Federal Government.

Phase 2 consisted of conducting focus groups and interviews via conference calls. A total of 65 interviews were held to gather information regarding EDI functionality, stakeholder issues, and concerns when implementing EDI. Interviews were held with bank representatives to assess the industry's EDI capabilities and identify issues that banks must overcome when implementing EDI into their business process. In-depth interviews were also held with the following primary EDI stakeholders:

- Government agencies
- Banks
- Government vendors.

Secondary stakeholders were also interviewed to provide added insight into where the "total" industry stands regarding EDI now and in the future. Secondary stakeholders include the following:

- Internet community representatives
- EDI software manufacturers
- Outsourcing agencies
- EDI consultants.

In addition to conducting interviews, the team led one focus group with a representative from each of the primary EDI stakeholders. Two additional focus groups were conducted consisting of at least three vendors per focus group. For a complete list of interview and focus group participants, see Appendix B.

In Phase 3, an analysis of data gathered was performed in an attempt to understand and properly categorize results. No preconceived categories or templates were established before analysis. All primary and supplementary information was reviewed for applicability to each of the three stakeholders. Our analysis focused on the relevance of the information to electronically process remittance data. Phase 4 encompassed the generation of this report.

1.3 DOCUMENT OVERVIEW

This report is divided into five chapters and four appendixes. Chapter 1 introduces the scope, approach, and overview of the document. Chapter 2 includes an assessment of the current banking industry. Chapter 3 projects where the industry will stand regarding EDI capabilities in the year of 1999 and beyond. Chapter 4 defines the effect of mandatory EFT 99 on industry's efforts to become EDI capable. Chapter 5 outlines alternatives to the problem of transferring payment information to government vendors. Appendix A includes a list of acronyms used in this report, Appendix B provides an interview list, Appendix C includes interview guides, and Appendix D provides references.

2. CURRENT BANKING INDUSTRY

Electronic transfer of remittance data is a critical aspect for the Government to consider in its conversion to an EFT payment system for vendors. Remittance data is defined as information associated with a payment and provides the recipients (individuals, vendors, and anyone else receiving government payments) with information regarding a specific payment made to the recipient's bank account. Remittance data identifies the electronic payment by invoice, purchase order, or any other identifiers on which the recipient and payment agency agree. This data enables the stakeholders to reconcile their accounts receivable with their bank statements.

Without remittance data, a recipient cannot determine the origin of a payment or for what service a payment is intended. Although remittance data is less of an issue for individuals who receive only a single, fixed payment amount, it becomes important as payments become more complex. One form of remittance data is a bank statement that provides customers with account payment information. Unfortunately, these statements are distributed only monthly, which does not meet most businesses' requirements.

More complex payment situations range from an individual receiving two Government checks to large vendor payments for multiple services to different branches of the Government. When an individual receives two Government checks under today's EFT system, it is possible for the bank to separate each payment amount as part of the individual's monthly banking statement. This process simplifies the complex payment to a simple form comparable to the individual receiving a single, fixed payment amount each month. For vendors who wish to reconcile their accounts daily or weekly, this monthly distribution of remittance data is unacceptable. Today, vendors receiving payments from the Government receive paper checks. Attached to the check is a "stub" that provides detailed information about the payment (e.g., taxes withheld, list of services). Because vendor payments require additional analysis and can be complicated to understand, aggregate monthly information is insufficient for the vendor to perform necessary bookkeeping.

An electronic remittance data transfer process is the optimal solution for the Government because a complete cost savings from the conversion of checks to electronic payments would be realized. Paying vendors electronically while simultaneously mailing a paper stub that displays payment information defeats the purpose of EFT 99—to reduce costs associated with the payment process. Consequently, EDI is being considered as a viable solution to the remittance data distribution problem, although it is not a commonly used process in the banking industry, nor is EDI being implemented extensively by vendors. Chapter 5 discusses alternatives that Treasury may want to consider to solve the problem of remittance data distribution. This chapter provides an overview of EDI and assesses the current banking industry as it relates to EDI.

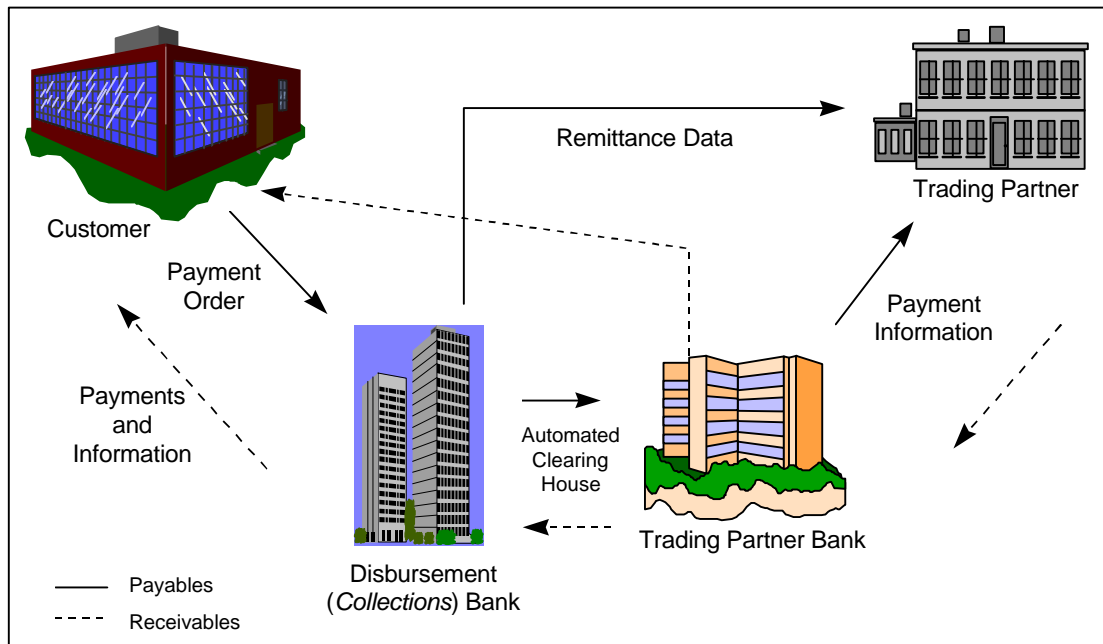
2.1 EDI OVERVIEW

A primary option being considered by the Government when evaluating alternatives to distributing remittance data is EDI. EDI is an enabling technology that organizations are increasingly implementing, both internally and externally with trading partners, to streamline their business process and improve efficiency. The primary focus of this study is based on the banks'

ability to receive and forward remittance data. The secondary focus of this study is based on the recipients' ability to receive the remittance data which results in our emphasis on the receivable EDI process. As part of the focus of this report, recipients are assumed to be primarily government vendors. Figure 2-1 illustrates the fundamentals of the EDI process, depicting the "payable" and "receivable" EDI processes.

Figure 2-1
EDI Process—Payables and Receivables

EDI is a significant part of the current industry trend toward electronic commerce (EC). Numerous electronic operations or computer-automated processes in different industries have



fostered the growth of EC. EC is the sharing of information using a wide variety of different electronic technologies, including fax, electronic mail (E-mail), EFT, digital imaging, and EDI. Table 2-1 lists EC definitions accepted across the industry. These definitions and the functions they represent are directly relevant to this study, the banking industry, and Treasury's vendor payments.

Table 2-1
EC Definitions

Name	Definition	Parties	Example
Electronic Data Interchange (EDI)	Information passed between companies not involving banks	Firm-to-Firm	Purchase Order (PO), Invoice, Remittance
Financial EDI	Information passed between banks and companies that relates directly to payments and bank balances	Firm-to-Bank Bank-to-Firm	Payment Order, Balance Inquiry, Bank Statement, Deposit Notice
Electronic Funds Transfer	Information passed among banks, which results in debits and credits	Bank-to-Bank	Wire Transfer, Automated Clearing House (ACH) debit
Value-Added Network (VAN)	A company that provides communications services and Value Added Services	Trading Partner-to-Trading Partner	Bulletin Boards, Fax, EDI
Value-Added Bank (VAB)	A bank that supports EDI and FEDI	Firm-to-Bank-to-Firm	Banks POs, Invoices, for customers

For the remainder of this report, these definitions were modified to avoid confusion. As shown in Table 2-1, the term EDI has a dual connotation: Financial EDI (FEDI) and EDI. FEDI is the electronic exchange of payments, payment-related information, and financially related documents among business partners. FEDI is similar to EDI in that it is the computer-to-computer exchange of payment related information in standard formats among companies. However, FEDI requires bank involvement to transmit financial payments because they hold and manage the deposit accounts where funds are usually held by vendors. Within EFT '99 guidelines, it is possible that authorized payment agents might not be financial institutions. Therefore, this report defines EDI as meaning both FEDI and EDI. No restrictions are implicitly or explicitly stated by this report regarding who should be an authorized payment agent.

Two primary sets of standards apply to electronic data formats for EDI. The most commonly used standards in the United States are developed by the Accredited Standards Committee X12 on EDI. This organization is a subcommittee of the American National Standards Institute (ANSI). In addition to ANSI X12 EDI standard, the international EDI for Administrative, Commercial, and Transport (EDIFACT) standard was adopted by the International Standards Organization (ISO) from the United Nations Economic Commission for Europe trade data element dictionary.

- **X12**—a standard used in the United States to ensure that data exchange is controlled and is uniform across various industries (e.g., financial ANSI standards fall under the 800 series).
- **EDIFACT**—a common European standard accredited by the United Nations Economic Commission for Europe. EDIFACT enables EC with international trading partners.

This section provided an overview of EDI and terms associated with EC. As previously mentioned, EC encompasses various techniques that could be considered alternatives to distributing vendor remittance data. However, before analyzing these options, it is essential that the current banking industry be assessed to determine its EDI capability.

2.2 BANKING INDUSTRY SCENARIOS

Banks are addressing the distribution of remittance data in a variety of ways: from paper distribution to electronic distribution (i.e., EDI). EDI-capable banks can provide customers with the luxury of receiving an electronic payment and remittance data simultaneously. However, EDI is a relatively new technology in the banking arena. A majority of U.S. commercial banks are incapable of originating and receiving electronic data transmissions. NACHA estimates that 1,250 of the 24,000 commercial banks are truly “EDI capable.”⁴ When determining if a bank is EDI capable, a bank must meet two requirements:⁵

- Ability to receive an EDI payment
- Ability to pass the remittance information contained with the payment on to its customer.

EDI systems in the banking industry transfer payment formats via the Automated Clearing House (ACH) network, which is a network of Financial Institutions (FI) providing electronic funds transfer services. More than 24,000 FIs; 400,000 companies and businesses, and millions of consumers use and benefit from the ACH payment system.² To meet the stakeholders’ (e.g., government agencies, vendors) needs for timely disbursement and collections, the following three payment formats are available as part of the ACH network:

- **Cash Concentration and Disbursement (CCD).** This format is the only one not accompanied by addenda records and would be incapable of including additional remittance data.
- **Cash Concentration or Disbursement Plus Addenda (CCD+).** The CCD+ format, the most widely used across the financial services industry, is the same as the CCD format with the addition of one 80-character addenda record attached to the payment.
- **Corporate Trade Exchange (CTX).** The CTX format allows the bank, company, or Government agency to electronically transmit one transaction to cover multiple invoices and associated remittance information. The CTX allows up to 9,999 80-character addenda records per payment.⁶

⁴ Confidential interview with NACHA representative, March 1997.

⁵ NACHA Corporate Financial Study, January 1995.

⁶ Confidential interview with NACHA representative, March 1997.

The following sections define the current banking industry's ability to implement EDI into their business process.

2.2.1 Scenario 1: Paper Payment Distribution Process

Based on NACHA's estimate, it can be extrapolated that 1 bank in 25 is EDI capable. This implies that a majority of U.S. commercial banks are continuing to operate using a paper-based payment process. The reasons for this continued reliance on the paper process vary. However, *some* of the EDI issues that banks have expressed relate to cost; these issues came to light by interviewing representatives from the banking industry and conducting secondary research. EDI cost models are discussed in Section 2.3.

In addition to cost, the issue of customer disinterest has resulted in banks avoiding EDI technology. For example, an article in the American Banker magazine states:

*"The lack of widespread acceptance of EDI has created a 'catch 22.' Banks do not want to invest in EDI until they see the demand can justify it, but the number of companies engaging in EDI is likely to remain low until more banks become EDI capable."*⁷

In summary, banks will not be "pushed" into implementing EDI until they feel a significant "pull" from their customers and/or the whole industry.

The benefits of converting to EDI may be minimal for small to medium banks. These banks may find that only a few of their customers need EDI services, whereas a majority of their customers prefer paper distribution. If this is the case, banks may lean toward paper distribution because the electronic process is cumbersome.

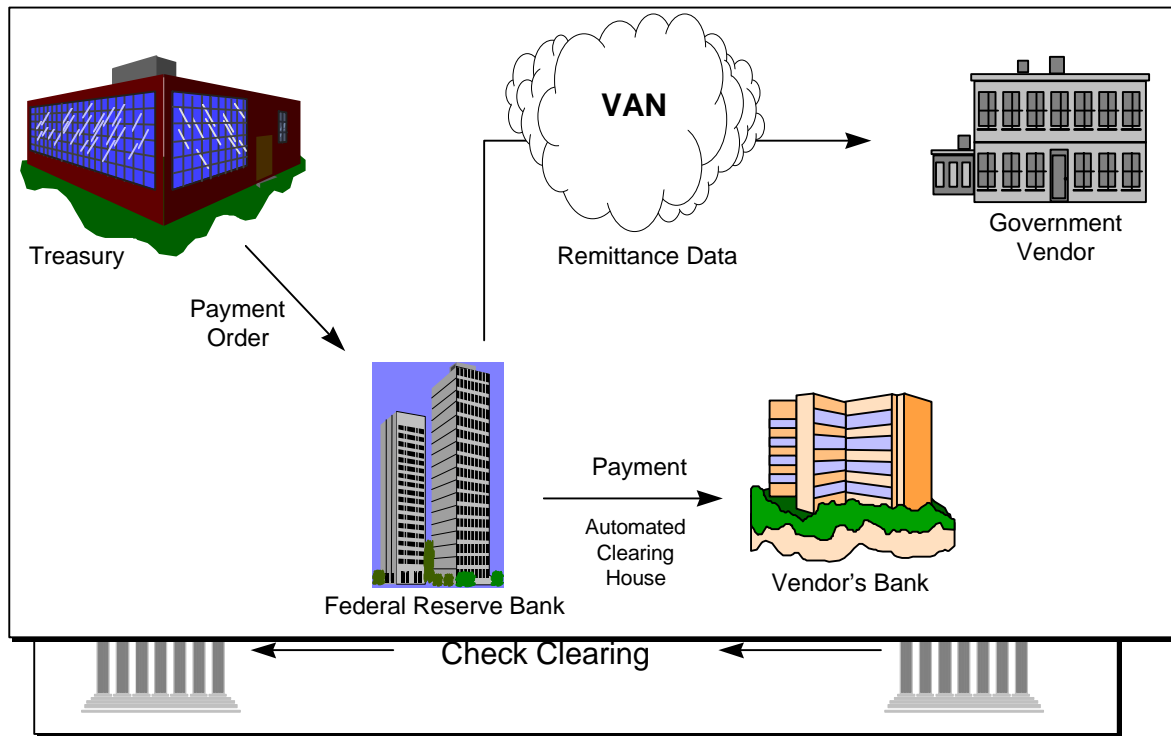
The issues mentioned above provide insight into the reasons a bank may not be EDI capable nor interested in embracing the system. Therefore, the paper distribution process is a system that banks are still choosing to support.

Figure 2-2 illustrates a typical "paper" process. The "buyer" submits a purchase order to the "seller." Upon receiving the purchase order, the seller ships the merchandise and then mails an invoice to the buyer. This invoice includes an itemized list of the items ordered, along with a sum dollar amount. After agreeing on the items contained in the invoice, it is the buyer's responsibility to mail a check to the seller for services rendered. A check often takes from 1 to 20 days to reach the seller. Once the check is received, the seller must deposit the check in the bank and await posting (1 to 3 days). After the check has been cleared, the buyer's account is debited.

Figure 2-2
Scenario 1: Paper Payment Distribution Process

⁷ Marjanovic, Steven. "EDI: Necessary, But Not Necessarily Profitable." *American Banker*, 22 July 1996: 21.

As described above, the paper process is time consuming and labor intensive. Postage is



an additional cost for the buyer and seller. Therefore, many organizations are moving toward conducting business electronically. EDI is a faster, more cost-effective means of conducting business than the traditional process. However, for some banks and vendors, this is not the case.

Sections 2.2.2 and 2.2.3 identify current scenarios in which banks use EDI.

2.2.2 Scenario 2: EDI Via Value-Added Network

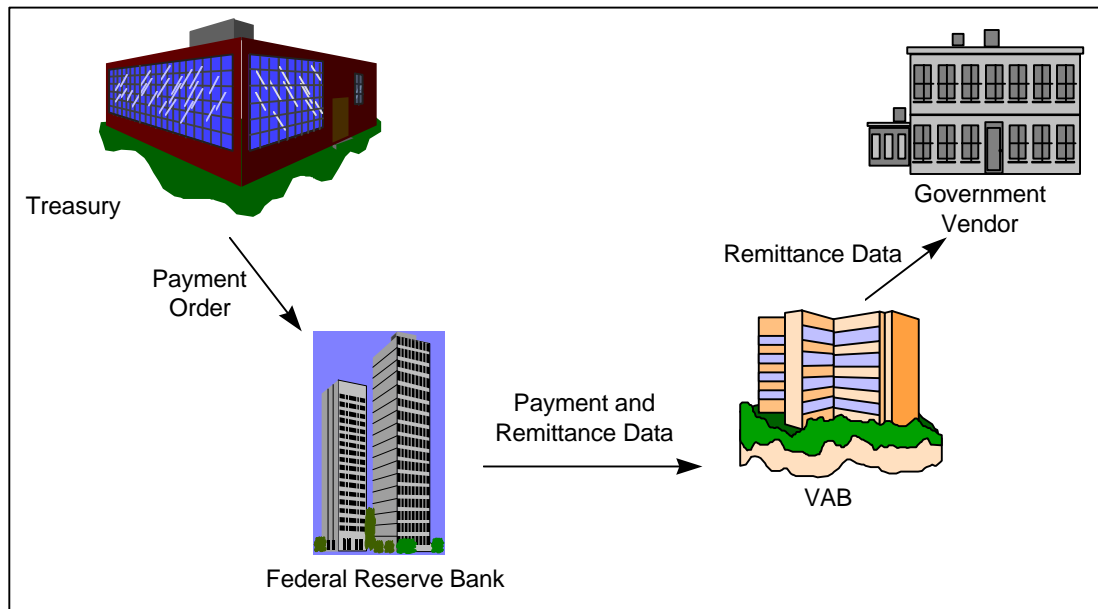
In this scenario, the payment and remittance data are split thus requiring the use of a Value-Added Network (VAN). Applying this process to Treasury and a receiving vendor results in the process shown in Figure 2-3.

Treasury sends a payment order to its bank (Federal Reserve Bank). Funds are transmitted through an ACH process to the vendor's bank. Because the vendor's bank is not EDI capable, a VAN is used to transmit data to the vendor by the bank. Consequently, the payment and remittance data are transmitted through different paths. VANs provide EDI communication capabilities necessary to electronically communicate.⁸ However, the vendor must invest in its own internal equipment to receive data (e.g., translation software).

Figure 2-2
Scenario 2: EDI Via VAN

⁸ GAP-Net Handbook. Uniform Resource Locator <http://net.gap.net/Ch5.htm>

2.2.3 Scenario 3: EDI Via Value-Added Bank



This scenario is similar to Scenario 2 except that a Value-Added Bank (VAB) is used rather than a VAN. Banks are moving toward offering additional services similar to a VAN. Like a VAN, a VAB facilitates the transmission of electronic data between senders and receivers. However, a VAB also provides financial settlements of payment and remittance transactions.⁹ Interviews conducted with large banks such as Nations and First Union provided the research team with general information on VABs. According to a Nations Bank representative, “.. banks that are considering becoming a VAB are large banks.”¹⁰ Secondary research conducted in the area of VABs revealed that these banks are competing with VANs to offer “one-stop shopping.” In other words, customers can take advantage of the VAB’s financial and network services.

The EDI process changes slightly when using a VAB instead of a VAN. Figure 2-3 illustrates the process. Treasury provides a payment order to the Federal Reserve Bank. Using an ACH, funds are transferred to a vendor’s VAB. More than 85 percent of U.S. commercial banks are unable to effectively transmit the remittance information that accompanies an ACH transaction to their customers.¹¹ Although this number appears alarming, VABs can transmit remittance data. Therefore, data is sent to a government vendor in a standard data format and the vendor’s account is credited. Translating data sent from the VAB is a vendor’s responsibility.

Figure 2-3
Scenario 3: EDI Via VAB

2.3 EDI COSTS

⁹ Financial EDI Facts. Herndon, Virginia: Bankers EDI Council, 1997.

¹⁰ Confidential interview with bank representative, March 1997.

¹¹ Marjarnovic, Steven. “Larger Companies Embracing Electronic Payments,” *American Banker*, 1 July 1996: 14.

Implementing EDI will cost banks and vendors varying amounts depending on the level of EDI technology the stakeholder needs. For example, a large bank that is willing to invest in a redesign of its business process might be willing to incur a significant cost, whereas a small bank may not be willing to convert to such a robust system. According to an estimate quoted from the American Banker:

“EDI systems cost \$100,000 to \$250,000 to implement and another \$100,000 to \$200,000 a year to maintain.”¹²

Based on these large dollar figures, it can be assumed that this is not the cost associated with implementing EDI for every situation. These numbers appear to represent an elaborate EDI system with premier services. Our research and interviews suggest that these numbers represent the costs of becoming a VAB.

Another source contacted by the research team revealed that EDI implementation can cost as little as \$1,500 to start up.¹³ Unfortunately, some banks do not have either the time or resources to support EDI. Few banks want to invest in a system that presently yields nominal returns.¹⁴ Table 2-2 provides a sample cost model of the average services associated with EDI based on aggregate numbers identified from our research. Note that costs incurred by a bank to become EDI capable will be both fixed and recurring. For example, a fixed cost item would be a one-time purchase of a computer to run EDI software. Recurring costs could be monthly network fees or fees per transaction. Sections 2.3.1 through 2.3.6 discuss costs associated with each of the six items listed in Table 2-2.

Table 2-2
EDI Cost Model

Item	Example	Fixed Cost	Variable Cost
Hardware	Computer equipment	\$1,500 - \$3,000	
	PC	N/A	
	Mainframe	\$100 - \$2,000	
Software	Modem		
	EDI Translation	\$500 - \$2,500	
VAN Service	Start-up Cost	\$0 - \$1,200	
	Monthly Interconnection	?? - ??	
	Transaction Fee	\$0 - \$40	\$.10
VAB Service	Start-up Cost	?	?
Maintenance	Software Upgrades	N/A	
	PC		\$0 - \$250
	Mainframe		?? - ??

¹² Marjanovic, Steven. “EDI: Necessary, But Not Necessarily Profitable.” *American Banker*, 22 July 1996: 21.

¹³ Confidential interview with EDI consulting firm, March 1997.

¹⁴ Marjanovic, Steven. “First Union Jumps on Financial EDI Bandwagon.” *American Banker*, 16 May 1995.

Business Process Redesign		Unlimited	Unlimited
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2.3.1 Hardware

Hardware costs may vary significantly from bank to bank. Depending on size and existing resources used to conduct business, the hardware investment costs to become EDI capable can be significant. Computers, which range from desktop personal computers (PC) to mainframes, can be used for EDI processing. However, based on processing capabilities and capacity, the cost for purchasing a mainframe to perform only EDI processing is not anticipated. Therefore, EDI hardware costs for mainframe hardware are classified as not applicable at this point. Nonetheless, upgrades to central processing units, additional memory, and increased storage capacity can all be expected when adding the necessary software to a mainframe to support EDI.

Costs associated with a PC or workstation hardware are easier to identify. A PC loaded with the required capacity that is dedicated to EDI processing will cost upward of \$3,000, depending on the exact configuration. A dedicated PC isolates the new EDI applications from existing functions to eliminate the potential impact on other applications. A stand-alone PC is unlike a mainframe, where increased processing by a new EDI application could affect other applications and overall system performance.

An additional advantage of the PC is reduced software costs. Most applications are priced according to their capacity and mainframes are capable of much more capacity than a PC, which allows software vendors to demand higher prices for their product. Furthermore, the PC software industry has become very competitive. This is due to ease of development on this platform. Another indicator that EDI software will be less expensive for a PC than for a mainframe.

The final hardware purchase identified in Table 2-1 is the modem. Whether using a PC or enhancing a mainframe, the modem must be included for telecommunications access. Many newer PCs contain a built-in 28.8-kbps modem and a software package to support different communications protocols (e.g., X-modem, Z-modem, transmission control protocol/Internet protocol [TCP/IP]). The functionality is relatively standard for a PC, costing nearly \$100 for a single-line modem. Prices for a mainframe modem with multiplexing capabilities to support multiple internal communication links can cost as much as \$2,000.

2.3.2 Software

EDI software costs can be divided into one of three categories: communication, translation, and integration. Communication software consists of modem-related software expenses. Section 2.3.1 discussed costs associated with modem hardware, which usually includes a standard software package to be used with the modem. No additional communication costs are included for modem software.

Every EDI trading partner who wishes to either send or receive data must have an EDI translator. Translation software allows trading partners to convert typed information into standard EDI formats. Additionally, the software translates incoming EDI messages into readable

characters. Depending on the business and system environment, translators may be installed on PCs or mainframes. PC translators may sell for as little as \$500, whereas mainframe computer translators may sell for as much as \$50,000.¹⁵ In addition, there is typically an annual license renewal fee of 10 to 15 percent of the price of the translator.

Integration software is code that allows the translation software to directly interface with existing systems. The cost that a business will incur if it desires to establish this custom interface may vary depending on the complexity of the business process and supporting applications. This complexity contributes to the risk associated with implementing the overall EDI system. Additional risks associated with the acquisition and development of custom integration software include compatibility, technical knowledge, and security requirements.

2.3.3 VAN Service

EDI costs associated with VANs may be divided into three areas: start-up costs, monthly interconnection fees, and transaction fees. Although each VAN uses different pricing schemes and marketing approaches to differentiate itself in the market, these costs will be covered by the price offered to each VAN customer.

Start-up costs include communications software specific to the VAN that supports safe and reliable interconnection with the network. This software can supplement or replace telecommunications software that is included with most modems.

Monthly fees are most common for interconnection to the network. This monthly fee incorporates general access charges, monthly and yearly reports, support services (e.g., hotline or help desk) as applicable, and software upgrades and patches as necessary. This is where the “value-added” aspect of most VANs is derived.

A per-transaction fee is usually charged when sending EDI encoded messages over the network. These transaction fees can often add up to be significant expenditures for a large vendor that maintains numerous individual accounts through the VAN. This variable cost will increase over time if the business using the VAN is successful in signing up additional suppliers over the VAN.

2.3.4 VAB Services

Section 2.2.3 defined the function of a VAB. Interviews with bank representatives revealed that costs associated with VAB services vary depending on the service being provided. Therefore, our research in this area leads us to believe that the costs are parallel to VAN fees. In fact, like VANs, VABs categorize fees in three areas: start-up, monthly, and transaction fees.

2.3.5 Maintenance

¹⁵ Sokol, Phyllis, *From EDI to Electronic Commerce*, McGraw-Hill, Inc. New York, 1995.

Banks and vendors incur fixed and variable costs when maintaining EDI technology. Fixed costs are typically yearly support service contracts provided by VANs and VABs. Ideally, the contracts are covered in VAN and VAB fees, which is why Table 2-2 lists the fixed costs associated with maintenance as “not applicable.” Hotline or help desk and emergency services (e.g., technicians on call) are additional examples of fixed costs that a bank or vendor might incur as part of a maintenance contract with an EDI service provider.

Variable costs associated with EDI are predominantly a result of software upgrades. For example, a vendor using an EDI software translation package developed by Sterling will most likely need to upgrade their software within 1 to 2 years. The principal reason for the release of upgrades is typically product enhancement requiring customers using the software to modify their systems. According to the costs listed in Table 2-1, software upgrades are usually no greater than \$250. This number is based on the team’s research and interviews with EDI software developers.

2.3.6 Business Process Redesign

The decision to adopt EDI is a business decision based on economies of scale and profitability. Although not often considered as a part of the EDI cost model, it is vital to the success of an EDI project to realize that cost-justifying investments must be made. As part of this cost justification, expenses associated with Business Process Redesign/Re-engineering (BPR) will be incurred. A wide range of approaches to BPR exist and the costs vary widely. The approach to EDI cost justification includes four steps: 1) analyze current costs, 2) determine which tasks will be automated, 3) analyze and compute the EDI and automation-related costs, and 4) compare the two and develop a phased cost saving analysis.¹⁶

Our research revealed no consistent fixed or variable costs associated with BPR for EDI. If a bank possesses the internal resources and skills needed to conduct a cost justification, the cost can be minimized. However, if external expertise must be sought for this activity, the cost can significantly increase.

¹⁶ Sokol, Phyllis, *From EDI to Electronic Commerce*, McGraw-Hill, Inc. New York, 1995.

3. FUTURE OF EDI

As was discussed in Chapter 2, EDI is one solution to the problem of distributing remittance data to government vendors. However, EDI is a business process that the banking industry has not fully accepted, thus creating the problem of inadequate resources. A bank's inability to electronically exchange data is the "bottleneck" for distributing remittance data associated with an ACH transaction. Although EDI participation may represent only a small fraction of the banking industry, it is difficult to determine if this will always be the case. The industry's perspective on EDI may change over time, resulting in an increased EDI participation level. The research team spoke with industry representatives capable of analyzing EDI future trends. Results from these interviews and information obtained during secondary research have enabled the team to attempt to project the future of EDI.

Predicting the future is not only difficult but also an inexact science; however, the team will provide *estimates* of EDI capabilities within the banking industry. The following sections will determine the team's assessment of the following:

- The rate at which EDI is growing in the banking industry
- Future trends
- Bank participation with EDI by 1999
- When the banking industry will reach full EDI capability.

3.1 EDI GROWTH RATE

According to NACHA, EDI participation is growing among large banks at an annual rate of 76 percent, whereas "smaller banks do not have the resources to support EDI."¹⁷ EDI usage in the small business community (both financial and private sector) is expected to continue growing but not at a rate of 76 percent. Five percent of small businesses were using EDI in 1995, 12 percent participated in 1996, and 19 percent are projected to participate in 1997. Based on these numbers, we can expect that EDI participation among this community will continue to rise. Several factors are possibly attributing to the growing demand of EDI. The following sections provide two suggested reasons for the growth rate of EDI in the banking industry.

3.1.1 Profit Margin

Factors driving banks to support and implement EDI vary from profit margin increases to a bank's desire to remain competitive. Banks may profit from EDI services by charging their customers transaction fees. Depending on the size of the bank, investment in EDI may be costly, resulting in high monthly setup and/or transaction fees for customers. For example, an FMS employee contacted a medium size bank (service area is a large state) to determine a typical monthly transaction fee the bank would charge a customer. Bank representatives reported that transaction fees were approximately \$2.50 per day. \$2.50 is a flat daily rate that allow for a

¹⁷ Confidential interview with bank representative, March 1997.

customer to receive unlimited transactions.¹⁸ We can assume that 20 working days are in a month. If a customer received at least one transaction every day for a month, the maximum monthly charge would be \$50.00. This is a profit for the bank; however, some banks argue that they are merely charging fees to “cover” their EDI expenses (e.g., translation software costs and hardware costs).

EDI may be profitable for the banking industry; however, this is not necessarily the case for some of the vendors. It is important to address, or at least recognize, vendors’ concerns regarding profit loss. In this sample case scenario, previously the mentioned \$2.50 flat rate will be used. Annual transaction rate estimates can be obtained by calculating \$50 per month times 12 months, totaling \$600 per year. In addition to the yearly transaction fees, the vendor must pay a start-up cost. Assuming a start-up cost is approximately \$1,500, a vendor quickly reaches a yearly expense of more than \$2,000 for his first year of EDI participation. Small vendors without computer systems must also factor in the cost of obtaining hardware and software. These items can easily run between \$1,800 and \$5,000 for modest systems. Totaling these figures, the cost for a small vendor could be in the range of \$6,500 to \$7,000. Numbers such as these are typically unrealistic for a small vendor that heavily relies on its ability to conduct business without having to lose profit.

A bank or vendor might invest in EDI if increases in profit margins are likely. However, if implementation costs outweigh the business profits of EDI, it may be a discouraging system. This, in turn, means that there could possibly be a decreased demand for EDI in the future.

3.1.2 Client Demand

Client demand is a second factor contributing to banks investing in implementing EDI systems. Organizations with a significant amount of power and clout are demanding that their customers use EDI. To remain competitive, banks are finding that they need to offer customers advanced technological services or risk losing clientele. Although EDI is growing at a rate of 76 percent among the banking industry, the number of EDI participants in other industries is increasing, however, not nearly as quickly as in the banking industry. EDI has grown at a rate of approximately 30 percent across all industries.¹⁹ This implies that consumers and the private sector are becoming EDI trading partners. Therefore, these stakeholders want to become affiliated with an EDI bank for ease of receiving remittance data. Banks willing to invest in EDI are adhering to the demands of their customers.²⁰

3.2 FUTURE TRENDS

EDI has been a means of conducting business for approximately 20 years, slowly evolving over this time period. Although the number of trading partners is increasing annually, determining the exact trends of EDI in the future is nearly impossible. However, it is possible to estimate

¹⁸ Confidential FMS E-mail, March 1997.

¹⁹ EDI Insider, Volume 1, Issue 1, 1996. Uniform Resource Locator—<http://wpc-edi.com/insider/Articles/i-1a.html>

²⁰ Confidential interview with bank representative, March 1997.

technological trends that may be used to transmit remittance data. This section will predict what *some* of these technology trends are presumed to be in the coming years.

3.2.1 Internet Site Development

Research indicates that banks are beginning to use the Internet to conduct business. Internet banking is showing continuous signs of steady growth.²¹ A survey conducted by Booz·Allen revealed that 30 banks had operational Internet sites, and more than 500 financial institutions are expected to have Internet sites by the year 2000.²² These findings support the prediction that Internet sites will become a common medium for banks to conduct business. It is not unlikely that a bank will be able to provide remittance data to customers via their custom-designed Internet site. Although Internet site development may appear to be a wave of the future, some issues may prohibit the successful implementation of this advanced technology. For example, Internet security is a concern for many trading partners.

3.2.2 PC Banking

Many banks offer software to their customers that enables them to access their accounts, a process commonly called “PC Banking.” Customers who have a PC and modem can “dial-in” to the bank’s system. Although PC banking is a relatively new technology in the banking industry, an increasing number of customers are supporting this process.¹⁹

Projecting the future of PC banking is an inexact science; however, based on the growing participation among customers to support PC banking, it can be expected that current PC banking capabilities will change over time. Therefore, the research team predicts that customers will be able to retrieve remittance data via PC Banking. Banks would have to provide this remittance data as a software package feature. This feature would eventually reduce mailing costs because monthly bank statements would always be accessible.

3.2.3 E-mail

It is predicted that E-mail will be widely used to carry structured EDI messages and appears to be an easy way for trading partners to exchange data. E-mail transmittal requires that each trading partner have the proper hardware and software to communicate.

3.2.4 FAX

It is expected that the fax machine will continue to be a means of distributing remittance data. In cases where the sending partner is EDI capable but the receiver is not, a fax delivers data in a print format.

²¹ Confidential interview with bank representative, March 1997.

²² Booz·Allen proprietary document.

3.2.5 Audio Response Unit

Banks that provide an Audio Response Unit (ARU) to their customers could enhance these systems to be capable of providing remittance data in the future. The system would be similar to the current ARU systems implemented by banks. A customer would be required to have a personal identification number (PIN) and an account number. Once the customer was verified by the system, menus would be used to access remittance data.

3.2.6 VABs and VANs

VABs and VANs are expected to continue to be the most popular means of providing EDI communication skills, expertise, and equipment necessary to electronically communicate.

3.3 EDI PARTICIPATION BY 1999

A bank's participation in EDI greatly depends on several factors. Section 3.1 provided a snapshot of a few factors that contribute to banks embracing EDI. Based on the growth rates discussed in Section 3.1 and secondary research results, it is predicted that the following will occur by 1999:

- Large banks will continue to support full EDI capabilities. "More than 40 percent of the top 300 banks will offer EDI by 1998,"²³ therefore, we can expect this number to increase by 1999. As a result, nearly half of the large banks will provide full service EDI.
- Small and medium banks will be inclined to invest in EDI because the majority of the industry is conducting EDI as a part of their everyday business process.
- Transaction fees associated with EDI will decrease as a result of less expensive EDI software. Lower fees will appeal to all banks and result in more banks using EDI.
- NACHA rule is passed, resulting in banks increasing their business process to include EDI.
- Pressure from State and Federal Government will drive more banks to "get on board" within the next 5 years.²⁴
- PC banking and the Internet will be used to conduct financial transactions and distribute remittance data.

²³ Marjanovic, Steven. "Declining Costs Lead to an Explosion in On-Line Corporate Banking Services." *American Banker*, 16 October 1996: 8.

²⁴ Confidential interview with bank representative, March 1997.

Items listed above represent an estimate of the banking industry. It is not the intent of the research team to suggest that the list is all inclusive, nor can it be said that these events will definitely occur.

3.4 OPTIMAL EDI CAPABILITY

Treasury has asked Booz·Allen to estimate the point at which the banking industry will become fully EDI capable. A fully EDI-capable bank can originate and receive EDI transactions and ACH payment information. After having defined an optimal EDI bank, an attempt can be made to determine when the banking industry will reach this point.

Many large banks are at the optimal point and have been for years. For example, EDIBANX is a consortium of large banks, including Mellon Bank and NationsBank, that united to address the problems of inability to access trading partners and remittance distribution. EDI is not a significant issue for the large institution; therefore, using a growth rate of 76 percent to calculate the participation of large banks in full EDI services, it can be extrapolated that by 1999 more than half of the U.S. large banks will be fully EDI capable.

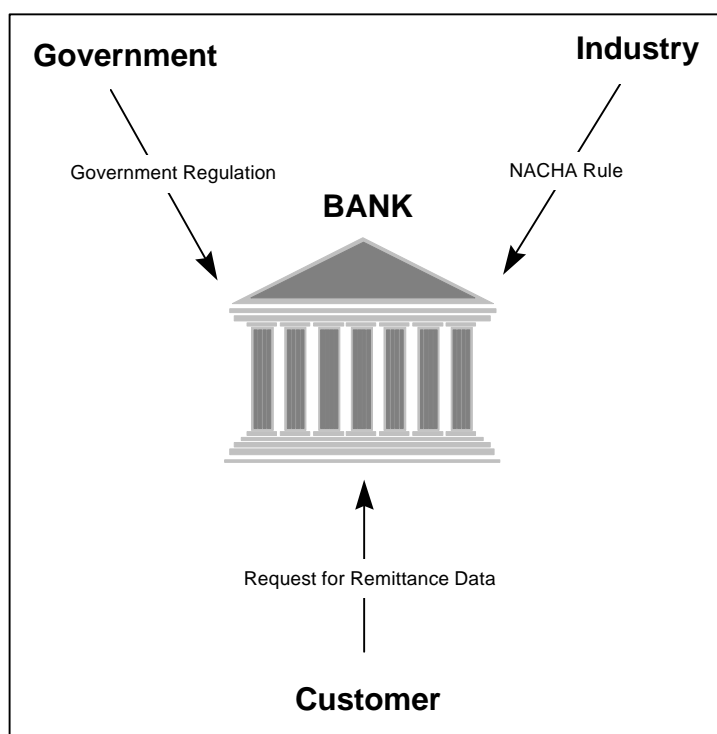
In contrast to large banks, small- and medium-sized banks may never reach optimal EDI capability. Reasons for this lack of participation include insufficient funds to support EDI technology and lack of interest by bank management and customers.

4. IMPACT OF MANDATORY EFT

Most banks are capable of receiving ACH payments from the Federal Government through their connection with the Federal Reserve Bank. Because of this existing and widely available network of banks, it is expected that EFT 99 will affect the banking industry in a variety of ways. This chapter outlines possible ways in which the banking industry will be affected by EFT 99. Specifically, this chapter provides predictions regarding banks' efforts to become EDI capable as a result of the EFT 99 legislation.

Customers, government regulations, and industry norms affect a bank's operations. These three factors exert external influence regarding how banks respond to requests to provide complete electronic remittance data with ACH payments (see Figure 4-1). Specifically, we will review EFT 99 in relation to Government influence on banks. To provide insight regarding the impact of mandatory EFT, we have drawn on the interviews and secondary research conducted in recent months. Subsequent paragraphs will discuss each of these three segments.

Figure 4-1
Banks' External Influences



4.1 CUSTOMERS

Traditionally, bank customers have not asked for electronic remittance data, or acted as a driving force for banks to offer EDI capabilities. Individual business cases have been the primary drivers for moving most businesses to EDI. Trading partners who realized a cost savings in their operations by increased automation have moved to EDI on a mutually agreed on schedule. Some situations have occurred where large corporations have identified such large cost savings that they

have mandated that their suppliers (i.e., potential trading partners) convert to EDI to continue conducting business with the large corporation.

Mandatory conversion of government payments to an electronic format will change the motivation for bank customers who conduct business with the Government. As discussed earlier in this report, if government vendor payments are made electronically, then remittance data is required with each deposit. Although customers have not been a major factor in pushing banks toward EDI, they will be a major factor in influencing reactions of the banks to EFT 99. For example, if vendors receive direct deposits of government payments, they will demand that either their banks or the paying government agency provide remittance data in a usable format. Otherwise, the bank and government agency will receive inquiries from a vendor looking for details of the deposit. A vendor dissatisfied with a government agency's direct deposit process wrote the following:

*"I have to say I am very unhappy with the way it is handled and wish to go back to having all payments mailed directly to us starting as soon as possible. I was under the impression that we would be notified by mail when deposits were made to our account with explanation of what the payment was to be applied, but all we receive is our bank statement which does not indicate which invoice to apply payment. Needless to say, it has caused great confusion with your account not being posted correctly. Please discontinue the automatic payment process as soon as possible and resume sending payments [paper]."*²⁵

Other "unknown" bank customers at this point are those who have no banking relationship. Options for Direct Deposit Too (DD2) are being developed by numerous banks. These solutions and others that may be allowed under the regulations for EFT 99 many provide a stronger business case to banks for pursuing the unbanked as potential customers. This business decision may be mutually exclusive for some small banks. Increasing the number of accounts that require minimal management (i.e., low overhead DD2 accounts) may prove to be a better business case than increasing services to current customers (i.e., remittance data processing for a few customers who conduct business with the Government).

The reaction of bank customers will vary with each situation. For many banks, the majority of their customers will not be a significant force to influence their decision about whether to become EDI capable. However, the customers who need remittance data to reconcile accounts will strongly voice their requirements. This customer group may force the bank to make some difficult decisions about the services they offer and customers they serve.

²⁵ Confidential letter from vendor to paying agency, October 1995.

4.2 INDUSTRY NORMS

Although several different organizations influence banks, specific to EFT 99 is the National Automated Clearing House Association (NACHA) and their operating rules. NACHA is considering a rule change that would force virtually every U.S. commercial bank to handle EDI payments. Specifically, the proposed wording requires that banks provide payment information to customers within 2 to 3 days.²⁶ Assuming that NACHA passes this rule, it will directly affect the growth of EDI in the banking industry. Banks will be forced to pass remittance data and will most likely consider the use of EDI. Note, however, that banks are not required to use a particular process to send remittance data to customers.

4.3 EFT 99

Although the full effect of mandatory EFT will not be known until after the implementation date, several predictions about impacts can be made at this time. An obvious prediction is that the number of deposit accounts that receive direct deposit will increase. Most stakeholders identified in this report will encourage payment recipients to enroll for direct deposit, which is a simple and well understood approach to providing electronic payments.

Along with increased EFT payments, telecommunication volumes will increase. Because additional direct deposit payments will be made and more of them will include addenda records, the ACH network(s) and other media of choice will show an increased volume as the Government converts to mandatory EFT. Anticipated volumes are unknown at present, but they are expected to be significant enough to warrant increases in capacity. The demand for additional capacity will give rise to additional costs to upgrade and improve existing computers and telecommunications to handle the volume.

The Government can expect most large, and some medium banks, to support EFT 99 by providing remittance data with the payment. Remittance data will primarily be made available using an electronic and automated medium, but no single solution will support all bank customers and their individual system configurations. Even with a dedicated effort by banks to comply with industry standard EDI requirements, issues will continue to be associated with remittance data because each customer will have different requirements and capabilities for receiving EDI messages. It cannot be assumed that all the bank customers will have a single computer platform (e.g., IBM compatible) where a common application will be supported. Therefore, even the best effort will not result in 100 percent participation.

Many small banks do not believe their customers will ever require the forwarding of remittance data; for some customers that banks serve, this is true. However, EFT 99 will force many small and medium banks to decide between supporting the transfer of remittance data with payments or losing customers who conduct business with the Government. As discussed in Section 4.1, when banks finally take a serious look at the business case, there may be additional

²⁶ Confidential interview with NACHA representative, March 1997.

incentive to pursue the unbanked. Doing so will increase the number of low-maintenance accounts rather than increase the service existing accounts.

5. REMITTANCE DATA DISTRIBUTION SOLUTIONS

As demonstrated in various chapters of this report, solutions to the problem of getting remittance data to vendors are neither simple nor straightforward. Chapter 2 of this report provided an overview of the current banking industry. This chapter showed that the banking industry is almost fully interconnected by the ACH network and standardized formats are widely available for EDI addenda records. The limitation in using this reliable and safe infrastructure is that not all banks on the ACH network can process the addenda information. In Chapter 3, we provided evidence that a wide range of potential technology innovations exist. These potential innovations contribute to the uncertainty of banks and vendors in deciding what EDI solutions to adopt. They could become obsolete before the return on investment is realized. Chapter 4 provided an analysis of how EFT 99 may affect banks by showing three segments that influence how banks operate: customers, government, and industry.

Based on the information provided in the previous four chapters, our research team has analyzed recommendations for Treasury and solutions to the problem of getting remittance data from banks to vendors. For the purpose of this paper, solutions specific to banks have been defined as actions that will result in transmittal of remittance data from banks to their customers. Section 5.1 provides recommendations that Treasury should consider to ensure that remittance data is successfully distributed to vendors by their bank. Section 5.2 identifies several solutions banks and vendors should investigate to minimize their cost and level of effort to implement.

5.1 RECOMMENDATIONS FOR TREASURY

The most effective method of ensuring remittance data reaches Government vendors is for Treasury to work with NACHA and the financial community to pass the proposed regulation - Remittance Information Processing by RDFIs (NACHA Operating Rules). The use of the ACH network as both a payment medium and as an information stream offers Treasury an inexpensive, reliable, and secure method of implementing EFT 99 and providing customers with excellent service. However, enacting this method of payment requires Treasury to perform two roles, as reflected in the following recommendations.

Recommendation #1: External Outreach

NACHA is the authority in establishing rules and regulations for all banks using the ACH system. NACHA is in the process of making an amendment to their Operating Rules that relates to remittance data. Appendix E contains a request for comment NACHA has distributed to members for their input on remittance information processing by RDFI. The rule states:

“Upon the request of the Receiver, an RDFI must make available all payment related information contained within the addenda records transmitted with all entries. The RDFI must provide this information to its Receiver, either in human-readable or machine-readable format,

by the opening of business on the second banking day following the settlement date of the entry.”²⁷

Although this rule directly affects RDFIs, Treasury should continue to participate in the NACHA rule making process to ensure that the proposed regulation is compatible with the Treasury goals and objectives of EFT 99. If this rule is passed, Treasury can be assured that remittance data will be provided to all customers by every RDFI. A bank that does not comply with this rule is subject to penalties. It is important to note that the rule does not require a bank to use a particular process or system to get remittance data to vendors. This means that banks may be inclined to implement one or more of the solutions listed in Section 5.2 of this report.

Recommendation #2: Inter-Governmental Partnership

It is important that Treasury act as the driving force to ensure 1) a “uniform” government-wide payment system is achieved and 2) remittance data is available for vendors. Therefore, Treasury should continue to work with the program agencies to:

- Ensure that issues and problems associated with remittance data are communicated to Treasury, and
- Facilitate the use of CCD+ or CTX format for use in the ACH payment process.

The consequences of Treasury *not* assuming the role of providing remittance data for all non-disbursing government agencies are serious and will most likely result in significant government costs. If however, there is an independent system for each agency, our research team recommends that Treasury consider one or a combination of the following options:

- Development of a central vendor registry and the funneling of payment information through this entity,
- Each program agency developing or continuing to operate its own remittance data processing service, and/or
- Outsourcing remittance services to a third party.

Any and all of these options will prove more expensive than transferring the data with the payment through the ACH system to the banks and eventually to the vendor.

²⁷ NACHA Operating Rules.

5.2 SOLUTIONS

Short-term solutions are options that are most viable for stakeholders to implement before January 1, 1999. Our research has revealed that the options available to solve the remittance data problem can all be implemented before the 1999 deadline. Therefore, we do not foresee the need for any long-term solutions, beyond the normal business system upgrade/enhancement process.

Solutions identified are geared towards banks because they are the entity supplying remittance data to the vendor. It is important to note that these solutions may not solve all the problems nor address all concerns however, remittance data will be provided to the vendor. Solutions are discussed in order of their complexity to implement, beginning with the least complex.

Solution S1: Banks Distribute Remittance Data via Paper Statements

It is Treasury's goal to eliminate the paper process of paying vendors. This is in part due to expenses and labor associated with such a distribution process. Banks on the other hand may choose to continue reliance on paper in order to provide customers with remittance data. Many reasons will drive this choice including a lack of technological systems which would enable the transfer of data electronically.

Providing remittance data to customers via paper is a process that any bank could incorporate into its business process. Essentially, remittance data would be supplied to the customer on their monthly bank statements. If this is not frequent enough, the customer can request remittance data as need be. Upon receiving a request from the customer for remittance data associated with a payment made to an account, the bank would mail a paper statement.

Costs associated with this solution are minimal because most banks currently distribute monthly bank statements to customers. Therefore, adding additional information to the typical statement would not cause any additional postage fees, unless weight increases significantly. However, paper remittance statements distributed in addition to the standard monthly statement will require postage and processing fees.

Solution S2: Banks FAX Remittance Data

Similar to Solution S1, a second paper distribution that banks could implement to pass remittance data to vendors is "Fax on Demand". This concept involves the customer notifying the bank of a payment that was made to their account and requesting a faxed copy of remittance data. It is the responsibility of the bank to supply the customer with a faxed copy of remittance data.

Implementing a "Fax on Demand" process may have a few costs that banks will incur. For example, sufficient hardware and software are needed to transmit a Fax and keep up with the volume of customer requests. Costs for these items vary depending on manufacturer and features of the product.

In order to successfully implement this solution, vendors will need to have a Fax machine to receive the remittance data from their bank.

Solution S3: Banks Implement ARU

Currently, most banks have an Audio Response Unit (ARU) which enables customers to access information about their account(s) activity. A major benefit of an ARU is the convenience a customer has of accessing the system 24 hours a day 7 days a week. Due to the fact that ARUs exist and have been a beneficial service to customers, banks would simply have to enhance their ARU system to include remittance data access. This process of building features onto an existing system would not be a large undertaking for most banks. However, the use of an ARU without a point of contact or “help desk” will most likely *not* be well received by customers. Inevitably, customers will have questions/concerns about a remittance report accessed via an ARU. For this reason, an ARU and a Help Desk must both be supported by a bank that selects this option for distributing remittance data to customers. The implementation of an ARU would also be a logical means for vendors to request paper (S1) or Fax (S2) remittance data.

Solution S4: Banks Offer PC Banking

PC Banking is a current functionality many banks are offering their customers. This software package is used to provide customers with access to their accounts. Enhancing the software to include access to remittance data associated with electronic payments is a long-term solution for both Treasury and vendors.

Vendors opting to support this solution would need to invest in a PC and modem in order to access the banks system. Costs for these hardware items are discussed in Section 2.3. Typically, PC Banking software is available to customers free of charge.

Solution S5: Banks Develop a Web Page

Banks willing to invest in the Internet as a means of conducting business could choose to use their Internet site as a means of distributing remittance data. As discussed in Section 3.2.1 there are a few issues associated with this solution. One issue is that customers would need to have a PC and appropriate software to access the Internet. Our research indicated that vendors were less likely to support this solution.

Solution S6: Banks Implement EDI

This report has discussed EDI and suggested ways in which banks can use this process to transmit remittance data to government vendors. As mentioned in previous chapters, 1 in 25 banks are EDI capable, however the majority of banks are not supporting EDI.

Implementing EDI across the banking industry is potentially a very complex solution for various reasons:

- High costs associated with implementing the system
- Extended time-frame to adopt a new business process
- Customer demand is not high
- Low priority for small/medium size banks
- Vendors lack resources (e.g., translation software)

These reasons and other arguments suggest that complete FEDI processing by *all* banks is a long way off.